27948
S/185/60/005/004/007/021
D274/D306

Effect of the external electric...

for a single surface state only.  As the germanium and silicon surfaces have 4 fast states, it is of interest to generalize Johnson's formula for any number of states.  $V_p^s$ is determined from

$$V_p^s = \frac{kT}{e} \Delta Y \approx \frac{kT}{e} \cdot \frac{dY}{d\Delta_p} \Delta p, \qquad (2)$$

where $\Delta_p$ is the relative increase in hole-concentration during illumination of the specimen.  After some transformations one obtains

$$\frac{dY}{d\Delta_p} = \frac{\lambda(e^Y + e^{-Y} - 2) + \sum_j \hat{\beta}_j \Phi_j}{(\lambda e^{-Y} - \lambda^{-1}e^Y + \lambda^{-1} - \lambda) + \sum_j \Phi_j}, \qquad (11)$$

where

$$\beta = \begin{cases} +1 & \text{при } T_j \gg 1 \\ -\lambda^2 & \text{при } T_j \ll 1 \end{cases}, \qquad (12)$$

$$\Phi_j = -\frac{2FN_j}{n_j L}[1 + e^{-(Y - \ln\lambda + \nu_j)}]^{-2} e^{-(Y - \ln\lambda + \nu_j)}.$$

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D274/D306

Effect of the external electric...

Formulas (2) and (11) determine the dependence of the photo-emf $V_p^s$ on the surface potential and surface states. Figures are shown with theoretical and experimental curves $V_p^s(Y)$. It is noted that the agreement between theory and experiment is good qualitatively only, whereas quantitatively there are discrepancies; these may be due to neglecting slow surface states, and to errors in determining the surface potential and surface states. Further, the drop is considered in the capacitor photo-emf which depends on $\Delta_p$. For silicon, the time constants $\tau_p$ and $\tau$ are not only of different magnitude (in the absence of an external field), but their dependence on Y is of a different character too. It is likely that the formation of a p-n junction at the silicon surface hinders the relaxation of the photo-emf. The magnitude of $\tau_p$ is determined by diffusion processes and surface recombination. The surface conditions (zone buckling and surface states) have a considerable effect on the photo-emf of silicon and germanium. The surface potential Y can be determined in principle by comparing experimental and theoretical values of $V_p(U)$ and $V_p(Y)$. But such

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Effect of the external electric...    S/185/60/005/004/007/021
D274/D306

ASSOCIATION:    Instytut fizyky AN USSR (Physics Institute AS UkrSSR)

SUBMITTED.    November 5, 1959

Card 8/8

89270
S/181/61/003/001/002/042
B102/B212

9.4300 (1043, 1143, 1155)

AUTHORS:      Primachenko, V. Ye. and Snitko, O. V.

TITLE:        The role of a dielectric in investigations of the field
              effect in semiconductors

PERIODICAL:   Fizika tverdogo tela, v. 3, no. 1, 1961, 15-18

TEXT:  One of the most important methods used to study the surface
properties of semiconductors is the method of the field effect (change of
the surface conductivity under the influence of an external electric field)
here, the semiconductor is a capacitor plate which is covered with a di-
electric (mica, strontium titanate) to increase the breakdown voltage.
Therefore it is of interest to know the effect of the dielectric on the
surface properties of the semiconductor; several studies made for this
purpose (among others, by Shao and Morrison) are briefly discussed in the
introduction.  In the following, the authors report on their own experi-
ments.  First, they repeated the experiments of Shao and found that a
considerable charge remains on the mica after the electrode has been
removed unter voltage.  Then, experiments have been undertaken to measure

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89270
S/181/61/003/001/002/042
B102/B212

The role of a dielectric in...

the field effect and the capacitor photo-e.m.f. directly, with and without mica, in a vacuum and in air. These experiments were made with n- and p-type Ge and n-type Si. As the results obtained were similar, only those concerning the n-type Ge ($\rho$ = 28 ohm·cm, thickness 340 $\mu$) are discussed. Fig. 1 shows the change of the conductivity $\Delta\sigma$ and the capacitor photo-e.m.f. $V_\phi$, measured for 15 seconds after a constant field had been applied, as a function of the capacitor charge (Q=CV); C with mica has 25 $\mu\mu$F, without mica, 10.5 $\mu\mu$F. Fig. 2 illustrates the long-period relaxation effect of the field for various cases. It is demonstrated again that curves recorded with and without mica coincide in dry air and in a vacuum, while those recorded in humid air deviate considerably from each other. Relaxation is more rapid with mica. All experiments showed consistently that in fields up to 1- 2·10$^5$ v/cm, no charges are transferred from the semiconductor to the dielectric in dry air and in vacuo. Results obtained for humid air are indicative of a partial charge transfer to mica, which increases with humidity; this is related to the surface conductivity of mica in humid air. There are 2 figures and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc.

Card 2/3
2
*Inst. Physics AS UkrSSR*

SNITKO, O., kand.fiz.-matem.nauk

Semiconductors.  Nauka i zhyttia  11  no.3:25-27  Mr  '62.

(MIRA 15:8)

(Semiconductors)

44192

S/181/62/004/010/045/063
B102/B112

AUTHORS:     Primachenko, V. Ye., Litovchenko, V. G., Lyashenko, V. I.,
             and Snitko, O. V.

TITLE:       Minority carrier adhesion on the silicon surface

PERIODICAL:  Fizika tverdogo tela, v. 4, no. 10, 1962, 2925-2930

TEXT:  This paper is aimed to show that under certain conditions a
charge accumulation may occur on the silicon surface and that the
bipolarity ($\Delta n = \Delta p$) may be disturbed.  This is, however, contradictory
to the observations made by other authors (see e.g. Phys.Rev.101, 1272,
1956; Semic.Surf.Phys.,85,1957).  The disturbance of bipolarity of the
intrinsic photoconductivity observed is attributed to minority carriers
accumulating on fast surface levels.  The same method of investigation
was used as described in previous papers (FTT 1,980,1959; FTT 2, 591,
1960; UFZh,5,345,1960).  The specimens were n-type Si single crystal
platelets 200-400μ thick with resistivities of 30 - 200 ohm·cm and volume
lifetimes of ~1000μsec, the surfaces of which had been etched with CP-8.
In germanium the bipolarity of the surface photocurrent may be disturbed

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S/181/62/004/010/045/063
B102/B112

Minority carrier adhesion on ...

only at low temperatures, but in etched silicon it may be disturbed even at room temperature. This is proved (1) by the nature of the photo-conductivity relaxation of thin samples if the oscillogram shows two exponents with widely differing time constants; (2) by the constant $\tau_{sh}$ of the short-term photocurrent component being inversely proportional to the electric field applied, whereas the constant of the long-term component is independent of it; (3) by the fact that the long-term component can be caused to vanish by the usual method of trap filling; (4) by the long-term component increasing as the temperature decreases, while the short-term component decreases and almost vanishes completely, this being related to the intensified charge accumulation; in both cases $\ln\tau = f(1/T)$ follows a linear course; (5) by the results obtained in a study of the kinetics of the field effect also indicating a disturbance of bipolarity. This bipolarity is also indicated by the field dependence of $\tau_{sh}$ and $\tau_l$ and (7) it is particularly pronounced in samples kept on air for a longer period of time after they had been etched. (8) Experiments on the condenser photo-emf proved that the disturbance of the photocurrent bipolarity of Si is related to a change in the surface charge. Such a

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Minority carrier adhesion on ...

disturbance occurs when $\dfrac{C_n}{C_p} \exp \dfrac{E_{tv} - \mu_{nc}}{kT} \ll 1$ and $\tau_c N_v C_p \exp(-E_{tv}/kT) \leqslant 1$ where $C_p$ and $C_n$ are the electron and hole trapping cross sections, $E_{tv}$ the energy of the levels relative to the valence band, $\mu_{nc}$ the electron Fermi quasilevel relative to the conduction band, $\tau_c$ the recombinative lifetime and $N_v$ the effective number of levels in the valence band. There are 3 figures.

ASSOCIATION:  Institut poluprovodnikov AN USSR, Kiyev (Institute of Semiconductors AS UkrSSR, Kiyev)

SUBMITTED:    February 6, 1962 (initially) June 12, 1962 (after revision)

Card 3/3

NESTERENKO, B.A.; PASECHNIK, Yu.A.; SNITKO, O.V.; FROLOV, O.S.

Field effect in thin lead sulfide films. Fiz. tver. tela 5 no.11:
3199-3206 N '63.                                        (MIRA 16:12)

1. Institut poluprovodnikov AN UkrSSR, Kiyev.

BONDARENKO, V.N. [Bondarenko, V.M.]; ZHINDULIS, A.I. [Zhyndulis, A.I.];
LITOVCHENKO, V.G. [Lytovchenko, V.H.]; SNITKO, O.V.;
FROLOV, O.S.

Effect of an external electric field on the work function
of thin lead sulfide films. Ukr. fiz. zhur. 8 no.10:1110-
1116  O '63.                                    (MIRA 17:1)

1. Institut poluprovodnikov AN UkrSSR, Kiyev.

L 10373-65    EWT(m)/EWP(b)    IJP(c)/SSD/AEDC(a)/ESD(gs)/AFWL/ESD(t)/RAEM(t)    JD
S/0181/64/006/010/2913/2920

ACCESSION NR: AP4046597

AUTHORS: Nesterenko, B. A.; Snitko, O. V.

TITLE: Investigation of atomically clean surfaces of germanium

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 2913-2920

TOPIC TAGS: germanium, surface condition, surface conductivity, recombination, oxidation, surface potential, capture cross section

ABSTRACT: The surface conductivity, the field-effect kinetics and the generation-recombination noise of atomically clean and oxidized surfaces were investigated. The samples were rectangular slabs cut along the (111) plane from single-crystal p-type germanium (15 ohm.cm resistivity and 60 µsec volume lifetime), and etched in CP-8. The atomically clean surface was obtained by helium-ion bombardment followed by heating to 700°C in $10^{-9}$ mm Hg vacuum. The oxidation was carried out in $5 \times 10^{-4}$ mm Hg vacuum for several tens of hours. The

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L 10373–65

ACCESSION NR: AP4046597                                                    O

clean surface had a high density ($\approx 10^{14}$ cm$^{-2}$) of fast surface levels
with a 20 μsec time constant for the electron exchange with the
valence band.  This made the surface holes degenerate and gave rise
to a considerable p-type surface conductivity.  The oxidation of the
surface reduced the density of these fast surface levels by several
orders of magnitude and produced slow surface levels.  The $1/f^2$-type
noise in the 1--5 kc frequency range was low for the clean surface
but increased by several orders of magnitude on oxidation.  The
noise was due to fluctuations in the surface hole density due to
thermal exchange between the surface acceptor levels.  Therefore a
study of the $1/f^2$-type noise may be a convenient method of investi-
gating the kinetics of surface levels with short time constants.
Some parameters of the two types of germanium surface (the surface
potential, the cross section for hole capture, etc.) were also de-
termined.  Orig. art. has: 7 figures and 2 tables.

ASSOCIATION:  Institut poluprovodnikov AN UkrSSR, Kiev (Institute

Card    2/3

L 10373-65
ACCESSION NR:   AP4046597

of Semiconductors, AN UkrSSR)

SUBMITTED:  06Mar64                                    ENCL:   00

SUB CODE:   SS            NR REF SOV:   008             OTHER:   013

Card   3/3

L 20501-65    EWT(m)/EWP(b)/EWP(e)/EWP(t)    Pq-4    SSD/AFWL/ESD(gs)/IJP(c)  WH/JD
ACCESSION NR: AP4038648                        S/0109/64/009/005/0876/0881

AUTHOR: Bondarenko, V. N.; Litvinova, E. M.; Snitko, O. V.; Tkhorik, Yu. A.

TITLE: Effect of some coatings and thermal treatment of the surface
recombination rate of silicon and germanium

SOURCE: Radiotekhnika i elektronika, v. 9, no. 5, 1964, 876-881

TOPIC TAGS: silicon, metal coated silicon, germanium, metal coated
germanium, surface recombination, surface recombination rate

ABSTRACT: An experimental investigation of the effects of (1) low-temperature
annealing of Si and Ge in He atmosphere and in contact with low-melt inorganic
glasses and (2) coating Si and Ge with a very thin film of Au or Al upon the
surface recombination rate (s) is reported.  Single-crystal, 0.4-0.7-mm thick,
Si and Ge plates were tested.  Four types of glass were used: (1) $Tl_2Se\ As_2Se_3$
(with a softening temperature of 109C), $As_2Se_3 + I_{1.5}$ (85C), $As_2Se_3 + I_2$ (70C),

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L 20501-65
ACCESSION NR: AP4038648

and $Tl_2S \cdot 2As_2S_3$. It is found that annealing of n- or p-type Ge results in an increase of $s$ by 2-3 times; a subsequent contact with glass results in an overall increase of $s$ by 3-6 times. Annealing of Si results in 2-4 times lower $s$; with a subsequent glass treatment, $s$ was reduced to about 300 cm/sec. The same value of $s$ was obtained by a vacuum-spraying of n-Si by gold (0.1-0.2 micron thick). The preliminary results of Al spraying were negative. "The authors wish to thank B. T. Kolomiyets and V. P. Shilo for lending the glasses." Orig. art. has: 1 figure, 2 formulas, and 3 tables.

ASSOCIATION: Institut poluprovodnikov AN UkrSSR (Institute of Semiconductors, AN UkrSSR)

SUBMITTED: 22Mar63

SUB CODE: MM, SS              NO REF SOV: 006

ENCL: 00

OTHER: 004

Card 2/2

L 31047-65     EWT(1)/EWT(m)/EWP(t)/T/EWP(b)/EWA(h)   Pz-6/Feb   IJP(c)   JD/AT

AUTHOR:  Prymachenko, V. Ye. (Primachenko, V. Ye); Milenin, V.V.; Snitko, O.V.

TITLE:  Investigation of gold-doped silicon surface

SOURCE:  Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 1, 1965, 39-46

TOPIC TAGS:  silicon, surface state, doping, surface recombination, recombination rate, photo efm

ABSTRACT:  The method of single high-voltage pulses was used to investigate the field effect of 20 p-type silicon samples etched and doped with gold from the etching substance.  The samples had an approximate resistivity 3500 ohm-cm and a non-equilibrium volume carrier lifetime 700 microseconds.  The orientation of the investigated surface was (111).  The method of etching and electrode deposition is described.  Measurments were made of the conductivity, photoconductivity, and capacitive photoemf as functions of the external electrical field applied to the sample surface through a mica plate.  The experimental set-up for measuring the field effect is shown in Fig. 1 of the Enclosure.  The photoconductivity and

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L 31047-65

ACCESSION NR:   AP5004321

capacitive photoemf were measured by applying rectangular pulses of white light with fronts up to $5 \times 10^{-7}$ sec, produced by a rotating mirror. Details of the sample preparation and of the experimental procedure were described by one of the authors elsewhere (Snitko, with G. V. Litovchenko, FTT v. 2, 591 and 815, 1960). The measurements were made at 20C, with the temperature maintained constant with an ultrathermostat. By comparing the experimental results with the theory, the authors determined the parameters of the surface states on doped and undoped surfaces. The presence of $1 \times 10^{-6}$ -- $1 \times 10^{-3}\%$ of gold in the etchant gives rise to an additional system of fast surface states, and also influences the parameters of the slow states. The most effective recombination level produced by the gold on the silicon surface lies 0.222 eV below the center of the forbidden band. This level is of the donor type ($C_n = 6 \times 10^{-15}$ cm$^2$, hole concentration $1 \times 10^{-22}$ cm$^2$), and the concentration of the level depends on the content of gold in the etchant, lying in the range $(0.8 -- 4) \times 10^{12}$ cm$^{-3}$. To obtain small surface-recombination rates in silicon it is necessary to employ extremely pure reagents and to treat the surface in a way that precludes the introduction of harmful impurities. "The authors thank N. A. Petrov for help with etching the samples." Orig. art. has:  6 figures.

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L 31047-65

ACCESSION NR:    AP5004321

ASSOCIATION:  Instytut napivprovidnykiv AN UkrSSR(Institute of Semiconductors AN UkrSSR), Kiev

SUBMITTED:  12May64          ENCL:   01                    SUB CODE:    SS

NR REF SOV:   008             OTHER:  007

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L 31047-65
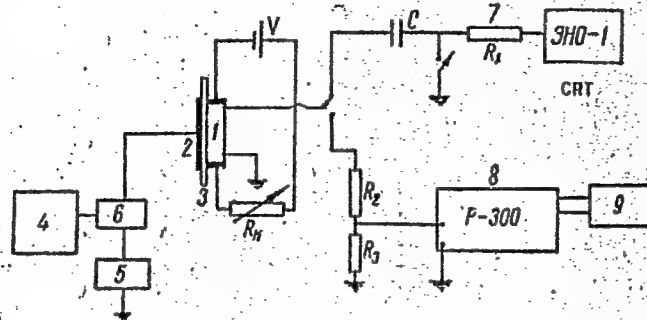ACCESSION NR: AP5004321 ENCLOSURE: 01



Fig. 1. Circuit for measuring the field effect.

1 - silicon sample, 2 - electrode, 3 - mica, 4 - square-wave generator,
5 - high-voltage pulse source, 6 - relay for hv pulses, 7 - oscillograph
coupling circuit, 8 - circuit for measurement of the conductivity change,
9 - galvanometer

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L 31050-65    EWT(l)/EWT(m)/EWP(t)/T/EEC(b)-2/EWP(b)  IJP(c)   JD/GG
ACCESSION NR:   AP5004322                         8/0185/65/010/001/0047/0054

AUTHOR: Nesterenko, B.O. (Nesterenko, B.A.); Pasichnyk, Yu. A. (Pasechnik. Yu.A.);
Snitko, O.V.; Frolov, O.S.

TITLE: Investigation of the influence of an external electric field on the photo-
conductivity and noise of thin layers of lead sulfide

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 1, 1965, 47-54

TOPIC TAGS: lead sulfide, photoconductivity, noise voltage, dark conductivity,
field effect

ABSTRACT:  The authors studied the influence of surface factors (external electric
field, adsorption of molecules) on the photoconductivity and low-frequency noise
of thin lead-sulfide layers.  Measurements were made of the dark conductivity, the
stationary photoconductivity, the photoconductivity time constant, and the noise
amplitude at 400 cps, on chemically and physically prepared PbS layers, as func-
tions of the external electric field, the surrounding gas atmosphere, and low-
temperature heating.  The test set-up for the conductivity noise amplitude is
illustrated in Fig. 1 of the Enclosure.  The bulk of the measurements were made in

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ACCESSION NR:   AP5004322

vacuum ($1 \times 10^{-6}$ mm Hg) and in dry air. The results have shown that physically and chemically deposited layers behave differently. Chemical layers had a conductivity relaxation that decreased with time following application of an external electric field, and exhibited appreciable influence of the external field on the photoconductivity and on the time constant. The physical layer showed a time-increasing conductivity, and no effect of the external field whatever. The dependence of the photoconductivity of chemical layers on the external field usually had a maximum which varied with the sample. It is assumed that to the left of the maximum the decrease in photoconductivity is connected with the increased rate of surface recombination, and to the right of the maximum it is possibly due to a decrease in the effective mobility. Tests have shown that there is no difference in the properties of the external surface of chemical layers and the surface in contact with the substrate. An external electric field and the surrounding gas atmosphere exerts a noticeable influence on the noise amplitude at 400 cycles. The surrounding gas and heating to 100C affect strongly the electrical parameters of chemical layers, with the most noticeable change taking place in the dark conductivity, which decreases in vacuum and also after heating in dry air. Some of the results are interpreted in light of earlier investigations by the authors.de-

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L 31050-65
ACCESSION NR:   AP5004322

voted to the effect of the field on the dark conductivity (FTT v. 5, 3199, 1963).
Orig. art. has:  7 figures, and 1 table.

ASSOCIATION: Instytut napivprovidnykiv AN UkrSSR,Kiev (Institute of Semiconductors,
AN UkrSSR)

SUBMITTED:  15May64          ENCL:   01              SUB CODE: EM,SS,OP

NR REF SOV:  004             OTHER:  010

Card 3/4

L 31050-65
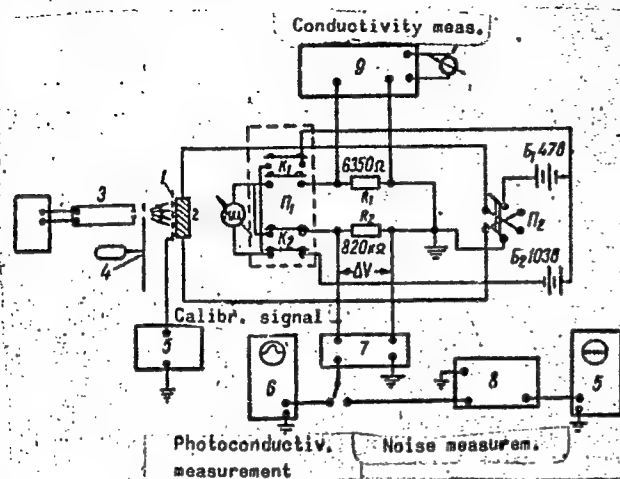ACCESSSION NR: AP5004322                                    ENCLOSURE: 01

Fig. 1. Circuit for measurement of dark conductivity, photoconductivity, and noise amplitude.

1 – Transparent electrode, 2 – PbS sample, 3 – light source, 4 – motor with disc, 5 – high-voltage rectifier, 6 – oscillograph, 7 – cathode follower, 8 – amplifier, 9 – potentiometer

Card 4/4

L 51445-65   EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)   Pz-6/Peb   IJP(c)   JD/
ACCESSION NR:   AP5011064 .        AT              UR/0185/65/010/004/0382/0388

AUTHOR:   Prymachenko, V. Ye. (Primachenko, V. Ye.); Snitko, O. V.; Milenin, V. V.

TITLE:   Investigation of the non-equilibrium effect of depletion of majority car-
riers from silicon

SOURCE:   Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 4, 1965, 382-388

TOPIC TAGS:   field effect, nonequilibrium effect, silicon, carrier depletion, con-
ductivity modulation

ABSTRACT:   The non-equilibrium field effect was investigated under the condition
of intense depletion of majority carriers from silicon.  The measurements were
made at room and low temperatures (down to 170K) on p- and n-type samples meas-
uring $1.2 \times 0.5 \times (0.02{-}0.05)$ cm.  The samples were placed in a cryostat in which
a vacuum of $\sim 1 \times 10^{-6}$ mm Hg was maintained.  A diagram of the measurement set-up
is shown in Fig. 1 of the Enclosure.  Two methods of attaining non-equilibrium de-
pletion were used -- turning on depleting field and turning off enriching field.
Appreciable modulation of the conductivity of the silicon plates was observed,
reaching complete removal of the movable carriers from them.  Under such condi-
tions the conductivity of a thin silicon plate dropped practically to zero.  The

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L 51445-65
ACCESSION NR:   AP5011064                                        2

temperature dependence of the duration of such a state and of the half-life of the
non-equilibrium field effect were investigated.  A study was also made of the de-
pendence of the duration of such a state and of the half-life on the applied volt-
age.  Application of light exerts a noticeable influence on the non-equilibrium
field effect.  The results obtained demonstrate the possibility of employing the
pulsed field effect in the depletion mode to obtain a non-equilibrium state with-
out free carriers in the interior of a crystal at a depth on the order of several
hundred microns (charged dielectric).  At low temperature (-120C) this state ex-
ists for a relatively long time (tens of seconds) owing to the slowed down rate of
thermal generation of surface charge, which does not have time to screen the ex-
ternal electric field in the pulsed depletion mode.  A detailed discussion of the
results on this basis of theoretical calculations are presented in a companion
article (Accession Nr. AP5011065).  Orig. art. has:  6 figures.

ASSOCIATION:  Instytut napivprovidnykiv AN URSR, Kyyiv [Institut poluprovodnikov
AN UkrSSR, Kiev ] (Institute of Semiconductors, AN UkrSSR)

SUBMITTED:  07Aug64              ENCL:   01                SUB CODE:  SS

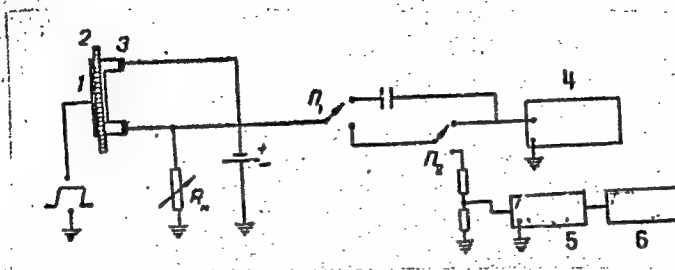NR REF SOV:  004                 OTHER:  002

Card  2/3

Fig. 1.   Diagram of circuit for field-effect measurement

1 - Metallic electrode, 2 - mica, 3 - sample, 4 - Oscilloscope,
6 - potentiometer, 7 - galvanometer

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L 51444-65    EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)    Pz-6/Peb    IJP(c)
JD/AT

ACCESSION NR:    AP5011065                                    UR/0185/65/010/004/0389/0397

AUTHOR:  Prymachenko, V. Ye. (Primachenko, V. Ye.); Snitko, O. V.; Milenin, V. V.

TITLE:  Concerning the mechanism of the non-equilibrium effect of depletion of majority carriers from silicon.

SOURCE:  Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 4, 1965, 389-397

TOPIC TAGS:  field effect, nonequilibrium effect, silicon, carrier depletion, conductivity modulation

ABSTRACT:  This is a theoretical explanation of the field effect in non-equilibrium depletion, proposed in the preceding paper in the same source (Accession Nr. 5011064).  The change in the space charge, the electric field, the conductivity, and capacitance of the semiconductor are calculated as functions of the potential drop across the semiconductor in the non-equilibrium mode.  It is shown that the calculated value of the depth of penetration of the field at the instant of the blocking of the current coincides with the thickness of the silicon plate, while the calculated value of the mobility of the field effect, with account of the change in the capacitance coincides in the case of large fields with the drift

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L 51444-65
ACCESSION NR: AP5011065

mobility of the holes in the volume. This offers evidence of the quantitative
agreement between the theoretical model and the experimental data, and confirms
the main idea of the proposed mechanism, in which the dominant role is played by
the majority carriers and the change in the conductivity and in the slowing down
of the rate of their generation with decreasing temperatures from the surface lev-
el. The generation of the majority carriers within the volume of the semiconduct-
or from local centers, and the generation of the minority carriers, apparently
play no essential role. Orig. art. has: 8 figures and 14 formulas.

ASSOCIATION: Instytyt napivprovidnykiv AN URSR, Kyyiv [Institut poluprovodnikov
AN UkrSSR, Kiev ] (Institute of Semiconductors, AN UkrSSR)

SUBMITTED: 07Aug64          ENCL:  00                SUB CODE:   SS

NR REF SOV:  004            OTHER:  003

Card  2/2

L 1562-66    EWT(m)/EPF(c)/EWP(t)/EWP(b)    IJP(c)    JD/WB

ACCESSION NR: AP5018635                    UR/0185/65/010/007/0745/0752

AUTHORS: Nesterenko, B. O. (Nesterenko, B. A.); Snitko, O. V.

TITLE: Effect of oxidation on the properties of an atomically clean silicon surface

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 7, 1965, 745-752

TOPIC TAGS: oxidation, surface ionization, surface property, silicon

ABSTRACT:     The purpose of the work was to obtain information on the type, concentration, and other parameters of electronic levels of atomically clean and oxidized surfaces of silicon by studying the surface conductivity, the direct-current and voltage-pulse field effects, the noise and rate of recombination. Four samples cut out from single-crystal p-type silicon parallel to (111) were investigated at 295K. The specific resistance of the samples was 600 -- 1000 ohm-cm. The surface was bombarded with argon ions with subsequent heating to 1000K in a vacuum no worse than $1 \times 10^{-9}$ mm Hg. Amplitudes of $\pm200$ v

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L 1562-66

ACCESSION NR: AP5018635

$\bigcirc$

and 40 $\mu$sec to 2 millisec long were used in the studies with voltage-pulse field effect. The hole conductivity of an atomically clean surface was found to be $1.3 \times 10^{-7}$ ohm$^{-1}$. The adsorption of oxygen at $5 \times 10^{-7}$ mm Hg leads to an increase of the surface conductivity by $4 \times 10^{-8}$ ohm$^{-1}$. Further oxidation does not lead to appreciable changes. It is shown that an atomically clean surface of p-type silicon has a surface potential $Y_s = 7$--12 kT/e. The nonexponential decay of the induced conductivity in the voltage-pulse field effect indicates screening of the external field by several different energy levels. The rate of surface recombination on a clean surface is large ($1.2 \times 10^3$ cm/sec). The noise obeys a 1/f law. Oxidation of the surface affects its properties, with the exception of the kinetics of the field effect and noise, little. A correlation is observed in the change of the kinetics of the field effect and noise on oxidation. It is concluded that the effect of fast surface states in the noise

Card 2/3

L 1562-66
ACCESSION NR: AP5018635                                    5

mechanism is appreciable. The appearance of slow levels in the oxi-
dation process is demonstrated. Considerable differences are found
between atomically clean surfaces of silicon and germanium. 'In
conclusion the authors express their sincere gratitude to Professor
V. I. Lyashenko, senior scientist V. G. Litovchenko, and junior sci-
entist R. O. Litvinov for detailed discussions of the results and
for valuable advice, and also the laboratory member comrade V. T.
Rozumnyuk for help in carrying out the experiment.' Orig. art. has:
4 figures.

ASSOCIATION: Instytut napivprovidnykiv AN URSR [Institut poluprovod-
nikov AN UkrSSR] (Institute of Semiconductors, AN UkrSSR)

SUBMITTED: 24Nov65          ENCL: 00          SUB CODE: SS, GC

NR REF SOV: 005             OTHER: 012

Card  3/3

L 5266-66    EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)    IJP(c)    JD/AT
ACC NR: AP5022445                                SOURCE CODE: UR/0109/65/010/009/1733/1735

AUTHOR: Primachenko, V. Ye.; Snitko, O. V.; Matsas, Ye. P.

ORG: none

TITLE: Investigation of the gold-doped physical surface of germanium

SOURCE: Radiotekhnika i elektronika, v. 10, no. 9, 1965, 1733-1735

TOPIC TAGS: germanium semiconductor, semiconductor research

ABSTRACT: The results of an experimental investigation of n-Ge specimens (45 ohms-cm, volume lifetime, 1 $\mu$sec) etchant-doped with Au are reported. Fast-state charge vs. surface potential and surface recombination rate vs. surface potential curves are shown. It is found that the Au-doping produces a second recombination level located above the $E_1$ ($E_2$ = +6kT) with capture cross-sections of $C_{n_2} = 10^{-16}$ cm$^2$, $C_{p_2} = 3 \times 10^{-13}$ cm$^2$ (acceptor level). The Au-doping also creates a set of fast nonrecombination states located higher and lower than the center of the forbidden band $E_i$ as compared to $E_1$ and $E_2$. "The authors wish to thank N. A. Petrova for her help in doping the specimens." Orig. art. has: 2 figures.
                                                UDC: 539.293.011.7:535.215.12:546.289
Card 1/1  SUB CODE: EC/  SUBM DATE: 23Nov64/  ORIG REF: 003/  OTH REF: 003

L 20401-66    EWP(t)    IJP(o)    JD

ACC NR: AP5024755            SOURCE CODE: GE/0030/65/011/002/0711/0718

AUTHOR:  Primachenko, V. E.; Snitko, O. V.; Milenin, V. V.        4+
                                                                   B

ORG:  Institute of Semiconductors, Academy of Sciences UkrSSR, Kiev

TITLE:  Nonequilibrium field effect on Si in the region of high de-
pletion
                              27

SOURCE:  Physica status solidi, v. 11, no. 2, 1965, 711-718

TOPIC TAGS:  silicon semiconductor, electric conductivity, semicon-
ductor band structure, nonequilibrium

ABSTRACT:  The features of the non-equilibrium field effect are in-
vestigated for silicon in the region of high majority carrier de-
pletion and non-equilibrium between the energy bands.  The observed
effects are a strong asymmetry of the amplitude dependence of con-
ductivity with respect to the sign of the external field, a current-
pinch effect, and a strong dependence of the kinetics of field effect

Card 1/2                                                           2

L 20401-66

ACC NR: AP5024755

on field strength, temperature, and light intensity.  A mechanism is
proposed for the non-equilibrium field effect in the depletion region
which involves a strong retardation of screening by surface states at
low temperatures and thus allows penetration of the field into the
volume of the crystal.  The experimental data agree quantitatively
with the calculation.  Orig. art. has: 4 formulas, 10 figures. [Based
on author's abstract]

SUB CODE: 20,09/   SUBM DATE: 16Jul65/   SOV REF: 003/   OTH REF: 003/

Card 2/2 BK

L 23113-66    EWT(m)/EWP(t)   IJP(c)   JD/JG

ACC NR:   AP6006870                          SOURCE CODE:  UR/0181/66/008/002/0611/0613

AUTHOR: Klimovskaya, A. I.; Snitko, O. V.

ORG: Institute of Semiconductors, AN UkrSSR, Kiev (Institut poluprovodnikov AN UkrSSR)

TITLE:  Influence of the adsorption of gold, aluminum, and antimony on the properties of atomically-pure germanium surface

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 611-613

TOPIC TAGS:  germanium, surface property, adsorption, electric conductivity, field emission, valence band, semiconductor impurity, aluminum, gold, antimony

ABSTRACT:  To determine the properties of atomically-pure germanium surfaces and surfaces doped with certain elements, the authors investigated at 23C the surface conductivity of p-germanium with resistivity 40--50 ohm-cm and its response to an external  electric field (field effect).  The samples (0.5 x 0.5 x 0.05 cm) were cut parallel to the (111) plane and placed in an experimental tube, the pressure in which was maintained at a level down to ~1 x $10^{-9}$ torr.  The surface was cleaned by cathode sputtering of the germanium in an argon atmosphere followed by annealing.  The conductivity was measured with the aid of sealed-in molybdenum contacts. The field effect at constant voltage was measured with the aid of a field elec-

Card 1/2

L 23113-66
ACC NR: AP6006870

trode mounted over the surface of the sample. An investigation of the dependence
of the conductivity on the charge induced on the surface has shown that an
atomically-pure germanium surface has a clearly pronounced conductivity of p-type,
brought about by a large negative charge (1--7) x $10^{12}$ el/$cm^2$ in the surface ac-
ceptor states located near the top of the valence band. Deposition of impurities
on the atomically-pure surface changed its properties markedly. Gold and aluminum
increased the resistivity with increasing concentration, while an increased con-
centration of antimony decreased surface resistivity. The field effect was also
found to be strongly influenced by the state of the surface when gold was used for
doping. Antimony exerted no influence on the field effect, although it did change
the conductivity to a considerable degree. This indicates that gold forms acceptor
surface states near the top of the valence band, screening the external electric
field, while antimony produces donor states which lie above the valence band and
above the Fermi level, and therefore do not take part in the screening. Both
aluminum and antimony form acceptor and donor states on the surface of the germani-
um, in analogy with their behavior in the interior of the germanium. No such be-
havior is observed for gold. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/    SUBM DATE: 20Sep65/    ORIG REF: 002/    OTH REF: 005

Card 2/2

L 8967-66    EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)    IJP(c)   JD/AT

ACC NR: AP5027432                              SOURCE CODE:   UR/0181/65/007/011/3422/3424

AUTHOR:  Pasechnik, Yu. A.; Snitko, O. V.

ORG: Institute of Semiconductors AN UkrSSR, Kiev (Institute popuprovodnikov AN UkrSSR)

TITLE:  Infrared photoconductivity of silicon due to electron surface states

SOURCE:  Fizika tverdogo tela, v. 7, no. 11, 1965, 3422-3424

TOPIC TAGS:  photoconductivity, IR photoconductor, silicon semiconductor

ABSTRACT:  Experiments are conducted to detect impurity surface photoconductivity in gold-doped polished silicon.  The specimens were p-type silicon with a resistivity of 3500 $\Omega \cdot cm$ and a carrier lifetime of 700 µsec, with dimensions of $1.2 \times 0.4 \times 0.05$ cm. IR photoconductivity spectra are given for specimens before and after polishing, and before and after doping.  Photoconductivity begins at 4.07 µ for a polished surface, and at 3.78 µ for a gold-doped surface and then increases monotonically as the wavelength is reduced.  Studies of the effect of an external electric field on the impurity photoconductivity in these specimens showed an increase in the effect when a positive surface charge is induced.  A theoretical explanation is given for the phenomena observed.  The authors are grateful to V. Ye. Primachenko, V. G. Litovchenko and O. S. Frolov for discussion of the work.  Orig. art. has: 2 figures.

SUB CODE:   20/    SUBM DATE:  31May65/    ORIG REF:  004/    OTH REF:  003

Card  1/1

ACC NR: AP7003616                    SOURCE CODE:  UR/0185/66/011/012/1316/1323

AUTHOR:  Snitko, O. V.; Pasichnyk, Yu. A.  Pasechnik, Yu. A.

ORG:  Institute of Semiconductors, AN URSR, (Instytut napivpro_yidnykiv AN URSR)
Kiev

TITLE:  Investigation of extrinsic photoconductivity of a gold-doped silicon surface

SOURCE:  Ukrayinsk'kyy fizychnyy zhurnal, v. 11, no. 12, 1966, 1316-1323

TOPIC TAGS:  photoconductivity, IR photoelectric cell, IR photoconductor, IR spectrum

ABSTRACT:  The extrinsic infrared photoconductivity spectrum of a silicon surface dope
doped with gold was studied.  Specimens of p-type (800—3500 ohm.cm resistivity) and
n-type (resistivity 300 ohm.cm) silicon measuring 1 x 0.5 x 0.05 cm were used.  Surface
infrared conductivity was observed as temperature decreased.  The magnitude and shape
of the spectrum were dependent on the gold concentration in the etchant.  The
external electrical field affected surface intrinsic photoconductivity; the
greatest effect was observed for the long-wave region of the spectrum.  This proposed
mechanism of surface infrared photoconductivity is in good qualitative agreement with
experimental results.  Orig. art. has:  5 figures and 6 formulas.          [WP]

SUB CODE:  20/  SUBM DATE:  13Apr66/  ORIG REF:  007/  OTH REF:  003

Card   1/1

SNITKO, P.G., [Snitko, P.H.], dots., kand. istor.nauk

Great international force. Nauka i zhyttia 11 no.2:4-6 F '61.
(MIRA 14:3)
(Socialist countries)

SNITKO, F., kand.istor.nauk

Program of the development of communism. Nauka i zhyttia  11 no.8:
1-6  Ag  '61.                                        (MIRA 14:12)
        (Communism)  (Russia--Economic conditions)

SEDLUKHA, G.A., inzh.; SNITKO, V.A., inzh.; UREVICH, A.B., kand. tekhn. nauk

Automating finishing operations on facades of buildings. Stroi.
i dor. mash. 9 no.3:15-17 Mr '64.                    (MIRA 17:6)

... , ... ... , ... ..., ...

... on the automation of finishing operations in the repair
... maintenance of facades. Dach. trudy AKHH no.31:179-184 '64.
(MIRA 18:9)

SNITKO, Vladimir Aleksandrovich; SEDLUKHA, Georgiy Andrianovich;
LEVCHENKO, Ya.V., red.

[New machines for facade operations] Novye mashiny dlia fa-
sadnykh rabot.  Leningrad, 1965.  22 p.        (MIRA 18:7)

SNITKO, Yu. S.

155T6

USSR/Biology - DDT          Jan 50
Insectology

"Relationship of Generation Phase of the Destructive
Eurygaster (Eurygaster Integriceps Put.) to DDT,"
I. K. Tsitovich, Yu. S. Snitko, Krasnodar Kray Ex-
perimental Sta for Plant Protection, 3 pp

"Dok Ak Nauk SSSR" Vol LXX, No 1

Many authors have shown resistance of various insects
to DDT depends on seasonal dynamics of physiological
stages; thus, insects of same genus but in different
stages of development will be affected differently
by DDT. Reports results of studies conducted on

USSR/Biology - DDT (Contd)          Jan 50

155T6

Eurygaster integriceps Put. to determine effect of
DDT at various development stages. Finds DDT is most
effective against larvae. Submitted by Acad L. A.
Orbeli 5 Sep 49.

155T6

SNITKO, Yu. S.

USSR/Biology (Agriculture)                Nov/Dec 51
Chemistry - Herbicides

"Data on Comparative Tests for the Evaluation of Domestic Herbicides," I. K. Tsitovich, Yu. S. Snitko, Krasnodar Expt Station of Plant Protection

"Agrobiologiya" No 6, pp 129-132

Carried out field tests on the extermination of weeds in wheat fields with 2,4-DU /2,4-dichlorophenoxyacetic acid/, 2M-4Kh /2-methyl-4-chlorophenoxyacetic acid/, and DINOK /dichloronaphthoxyacetic acid/ of

USSR/Biology (Agriculture)                Nov/Dec 51
Chemistry - Herbicides
(Contd)

domestic manuf. Found that these products were in no way inferior to imported 2,4-D and methoxone.

200T75

200T75

CA SMITKO, Yu. S.

Dynamics of the numbers of weeds in plantings treated with herbicides. I. K. Tsitovich and Yu. S. Smitko (Krasnodar Plant Expt. Station). *Doklady Akad. Nauk S.S.S.R.* 77, 449-52(1951) — 2,4-D (I), 2-methyl-4-chlorophenoxy-acetic acid (II), and Na dinitro-o-cresoxide (III) give complete elimination of only the most sensitive weeds *Ambrosia artemisiaefolia*, *Xanthium strumarium*, *Capsella bursa-pastoris*, *Thlaspi arvense*, *Abutilon avicennae*, and sunflower) when the herbicides are sprayed at a dosage of 0.75-1.5 kg./ha. in 500-1000 l. H₂O. Annuals, as *Chenopodium album* and *Amaranthus retroflexus*, when treated with the above dose of I, redevelop to 20-30% of the original population in about 1.5 months. *Polygonum convolvulus* and *P. aviculare* redevelop but more weakly. Among the perennials, only *Cirsium arvense* failed to reëstablish an above-ground growth in 2 months after the action of I or II. III. is effective on the more sensitive weeds, but has poor activity on the perennials in comparison with I or II.

G. M. Kosolapoff

ACC NR: AP7006118                                   SOURCE CODE: UR/0209/67/000/001/0060/0063

AUTHORS: Snitkovskiy, A. (Candidate of geographical sciences); Sorochinskiy, M. (Candidate of geographical sciences); Pshenichner, B.

ORG: none

TITLE: The satellite searches for hurricanes

SOURCE: Aviatsiya i kosmonavtika, no. 1, 1967, 60-63

TOPIC TAGS: meteorologic satellite, LONG RANGE weather forecasting, storm, heat radiation, meteorologic research facility

ABSTRACT: Meteorologic satellites are put into orbits of 600--800 km to relay information and advance warning on the formation and location of hurricanes and cyclones. The satellites also relay information on the distribution of solar energy for long-range weather forecasting and on the distribution of the ultraviolet sector of the solar spectrum for determining ozone content and for studying the optic properties of the atmosphere. Kosmos-122 measures atmospheric radiation, rad⁻⁻⁻ from the earth, elements of radiation balance, and radiation in ranges ⁻⁻ ⁻⁻⁻⁻ microns and 8--12 microns. Cameras on board take infrared pictures on day and night sides of the earth. Computers reduce the data for a global chart showing distribution of radiation intensity. Plans call for launching additional weather satellites which

Card 1/2

ACC NR: AP7006118

can be maneuvered to designated positions by signals (Polet-1 and Polet-2). Orig.
art. has:  1 sketch and 1 photograph.

SUB CODE:22,04/        SUBM DATE:  none

Card 2/2

ACC NR: AT6032990                          SOURCE CODE:  UR/2546/66/000/149/0097/0101

AUTHOR:  Snitkovskiy, A. I.

ORG:  Central Institute of Forecasts (Tsentral'nyy institut prognozov)

TITLE:  Kinetic energy distribution in an intensively deepening cyclone

SOURCE: Moscow. Tsentral'nyy institut prognozov. Trudy, no. 149, 1966. Rezul'taty
ispytaniy razlichnykh sposobov kratkosrochnykh prognozov pogody (Results of analyses
of various short-range weather forecasting methods), 97-101

TOPIC TAGS:  atmospheric physics, cyclone energy, cyclogenesis, atmospheric kinetic
energy, high wind , CYCLONE , WIND VELOCITY

ABSTRACT: At 0300 hr on 29 September 1963, a poorly defined wave disturbance
appeared on an Arctic front over the southwestern part of the
Black Sea.  A slight drop in pressure preceded the warm front.
On 29 September, the pressure dropped 2.3 mb in 3 hr, and a
1013-mb cyclone appeared at the peak of the wave disturbance.
The pressure in the cyclone dropped to 951 mb by 1500 hr on
1 October, then the pressure at the center of the cyclone began
to rise.  While deepening, the cyclone travelled 2600 km from
the Black Sea to Syktyvkar.  Ground-level wind speeds behind the
cold front reached 25—40 m/sec (55—88 mph).

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ACC NR: AT6032990

and contributes to the increase in the kinetic energy at ground
level; this leads, in time, to rising winds at ground level, even
at the beginning of the cyclone.            [WA-50; CBE No. 12]

SUB CODE:  04/  SUBM DATE: .none/  ORIG REF:  001/

Card   3/3

ACC NR: AT6032990

A study was made of the kinetic energy in different parts of the
cyclone and its changes in time, from the appearance of the wave
until the cyclone had filled at ground level, with measurements
made at ground level and on the 850-, 700-, 500-, 300-, and 200-mb
surfaces at 0300 and 1500 hrs Moscow time. These values were cal-
culated in knots per unit mass, then averaged for areas of
1500 x 1500 and 500 x 500 km$^2$. The network was a grid of 1500 km on each side
(7 x 7 points per step of 250 km, subdivided into 9 smaller squares
of 500 x 500 km$^2$). The wind speeds on the 850-, 700-, 500-, 300-,
and 200-mb surfaces are assumed to be equal to geostrophic wind
speeds. The center of each square was superposed on the crest of
the wave or the center of the cyclone at the surface when obtaining
data on pressures and the geopotential needed to calculate wind
speeds on the isobaric surfaces. Wind speeds were calculated by
finite-difference formulas, and all calculations of the kinetic
energy were run on a high-speed computer.
Analysis of the data showed that most of the change in kinetic
energy in the middle and upper troposphere occurred in the first
few 12-hr periods after the cyclone appeared at ground level;
this makes it reasonable to assume that during cyclogenesis,
part of the energy at high levels is transferred to lower levels

Card  2/3

L 62972-65   EWT(1)/FCC   GW
ACCESSION NR:  AT5016799

UR/2546/65/000/146/0053/0062

AUTHOR:  Snitkovskiy, A. I.

TITLE:  The distribution of energy along a vertical and its relation to the
evolution and movement of cyclones

SOURCE:  Moscow. Tsentral'nyy institut prognozov. Trudy, no. 146, 1965. Region-
al'nyye zakonomernosti i prognoz gidrometeorologicheskikh yavleniy (Regional
regularities and forecasting of hydrometeorological phenomena), 53-62

TOPIC TAGS:  cyclone, climatology, meteorology, weather forecasting, atmosphere,
atmospheric movement

ABSTRACT:  The distribution and time variation of kinetic, potential, and internal
energy in cyclones are studied.  For this purpose a column of the atmosphere from
the surface of the earth to the 200-millibar surface was selected.  Energy calcula-
tions were conducted for basic aerological periods of observation (0300 and 1500
hours, Moscow time).  Observations began with the moment of cyclone apparition at
the earth's surface and terminated either with the cyclone's disappearance or after
the cyclone had reached a developed condition.  In all, ten cyclones were observed
during 1962 and 1963 in the European territory of the SSSR.  In each instance the
kinetic energy was computed over an area 1500-km square, with the center of the
Card 1/2

L 62972-65

ACCESSION NR: AT5016799

cyclone corresponding to the center of observation. Working formulae were:  1)

energy relative to unit mass $K_{cu} = \frac{v^2}{2}$ , where v is the wind speed at selected

millibar levels, given in meters/second by $v = 1,146 \frac{\partial p}{\partial n}$ where $\frac{\partial p}{\partial n}$ is the pressure

gradient in millibars at 500 km, 2) mean layer temperature $T = \frac{H_p - H_{p_0}}{67,4424 \lg \frac{p_0}{p}}$ ,

where $H_p$ and $H_{po}$ are the geopotentials of isobar surfaces p and $p_0$, and 3) potential

energy $\amalg = p_1 z_1 - p_2 z_2 + (\varkappa - 1) I_{ci}$ where $\varkappa = \frac{c_p}{c_V}$ : the ratio of heat capacitance at

constant pressure to heat capacitance at constant volume. A plot is made of the
change of kinetic energy in an observed cyclone. Test data revealed that internal
energy decreases rapidly with increased height above the earth. Potential energy
increases during cyclone development at low levels and generally decreases at higher
levels. Several equations describing the redistribution and movement of cyclone
energy are developed. Orig. art. has: 1 figure, 20 equations, and 4 tables.

ASSOCIATION: Tsentral'nyy institut prognozov (Central Forecasting Institute)

SUBMITTED:  00                    ENCL:  00                    SUB CODE:  ES

NO REF SOV:  007                  OTHER:  001

Card 2/2

ACC NR: AT6032990                    SOURCE CODE: UR/2546/66/000/149/0097/0101

AUTHOR: Snitkovskiy, A. I.

ORG: Central Institute of Forecasts (Tsentral'nyy institut prognozov)

TITLE: Kinetic energy distribution in an intensively deepening cyclone

SOURCE: Moscow. Tsentral'nyy institut prognozov. Trudy, no. 149, 1966. Rezul'taty ispytaniy razlichnykh sposobov kratkosrochnykh prognozov pogody (Results of analyses of various short-range weather forecasting methods), 97-101

TOPIC TAGS: atmospheric physics, cyclone energy, cyclogenesis, atmospheric kinetic energy, high wind , CYCLONE, WIND VELOCITY

ABSTRACT: At 0300 hr on 29 September 1963, a poorly defined wave disturbance appeared on an Arctic front over the southwestern part of the Black Sea. A slight drop in pressure preceded the warm front. On 29 September, the pressure dropped 2.3 mb in 3 hr, and a 1013-mb cyclone appeared at the peak of the wave disturbance. The pressure in the cyclone dropped to 951 mb by 1500 hr on 1 October, then the pressure at the center of the cyclone began to rise. While deepening, the cyclone travelled 2600 km from the Black Sea to Syktyvkar. Ground-level wind speeds behind the cold front reached 25—40 m/sec (55—88 mph).

Card 1/3

ACC NR: AT6032990

A study was made of the kinetic energy in different parts of the
cyclone and its changes in time, from the appearance of the wave
until the cyclone had filled at ground level, with measurements
made at ground level and on the 850-, 700-, 500-, 300-, and 200-mb
surfaces at 0300 and 1500 hrs Moscow time. These values were cal-
culated in knots per unit mass, then averaged for areas of
1500 x 1500 and 500 x 500 $km^2$. The network was a grid of 1500 km on each side
(7 x 7 points per step of 250 km, subdivided into 9 smaller squares
of 500 x 500 $km^2$). The wind speeds on the 850-, 700-, 500-, 300-,
and 200-mb surfaces are assumed to be equal to geostrophic wind
speeds. The center of each square was superposed on the crest of
the wave or the center of the cyclone at the surface when obtaining
data on pressures and the geopotential needed to calculate wind
speeds on the isobaric surfaces. Wind speeds were calculated by
finite-difference formulas, and all calculations of the kinetic
energy were run on a high-speed computer.
Analysis of the data showed that most of the change in kinetic
energy in the middle and upper troposphere occurred in the first
few 12-hr periods after the cyclone appeared at ground level;
this makes it reasonable to assume that during cyclogenesis,
part of the energy at high levels is transferred to lower levels

Card 2/3

ACC NR: AT6032990

      and contributes to the increase in the kinetic energy at ground
level; this leads, in time, to rising winds at ground level, even
at the beginning of the cyclone.                [WA-50; CBE No. 12]

SUB CODE:  04/  SUBM DATE:  none/  ORIG REF:  001/

Card  3/3

ACC NR: AT7006723

SOURCE CODE: UR/2546/66/000/158/0003/0010

AUTHOR: Snitkovskiy, A. I.

ORG: none

TITLE: Energy distribution in the region of a cyclone at various stages of its development

SOURCE: Moscow. Tsentral'nyy institut prognozov. Trudy. no. 158, 1966. Sinopticheskaya meteorologiya (Synoptic meteorology), 3-10

TOPIC TAGS: kinetic energy, internal energy, wind, cyclone, ATMOSPHERIC GEOPOTENTIAL, GEOSTROPHIC WIND

ABSTRACT: The author has examined the distribution and change with time of the kinetic, potential, and internal energy in cyclones, from the earth's surface to the 200-millibar level. Ten cyclones of 1962 and 1963 in European SSSR were selected for computations. Energies were computed for points at intersections 250 km apart on a square grid 1500 km on a side. The geostrophic wind was used for computing kinetic energy. The internal and potential energies were computed for a vertical column of air of unit cross section, and were computed separately for layers limited by the principal isobaric surfaces (200 and 300, 300 and 500, 500 and 700, 700 and 850 millibars), and also for the total column from the earth to the 850-millibar level. Maps were then plotted to show energy distribution at four different stages of cyclonic development. The shifting of energy highs may be seen on these maps. It

Card 1/2

ACC NR: AT7006723

was found that as a cyclone develops at the earth's surface to the maximal stage, an essential factor in increasing the kinetic energy in the lower layer of the atmosphere is transfer of energy from the upper layers, chiefly through internal friction. The various changes in energies for the different stages of cyclonic development and for different levels are discussed and compared with values when no cyclone is developing. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 002

Card  2/2

ACC NR: AT7006732                                    SOURCE CODE: UR/2546/66/000/158/0085/0089

AUTHOR: Snitkovskiy, A. I.

ORG: none

TITLE: The relation of kinetic energy to precipitation

SOURCE: Moscow. Tsentral'nyy institut prognozov. Trudy, no. 158, 1966.
Sinopticheskaya meteorologiya (Synoptic meteorology), 85-89

TOPIC TAGS: weather forecasting, kinetic energy, atmospheric pressure, atmospheric
precipitation

ABSTRACT: This paper examines the relation of the kinetic energy at different
pressure surfaces to the amount of precipitation at the earth's surface. Twenty-
eight cyclones of the cold months (November to February) observed in European SSSR
during 1962--63 were selected for study. Choice of the cold months eliminated to a
great extent the effect of convection on the amount of precipitation. Kinetic energy
was computed, according to a method previously proposed by the author, for the 850-,
700-, 500-, 300-, and 200-millibar surfaces in different parts of the cyclone.
Precipitation data were taken for each day at the hours of 7 a.m. and 7 p.m. local
time. The coefficient of correlation and the correlation ratio were then calculated
for the various levels, averaged over areas of different size (500 x 500 km and 1500 x
1500 km). Correlation improved appreciably with increase in size of area being

Card 1/2

ACC NR: AT7006732

averaged. Comparison of the Laplacian of the pressure with amount of precipitation indicated acceptable correlation. It was found that the values of kinetic energy at the different levels have a linear relationship. This is indicated by the high value of the correlation coefficient and by the fact that the correlation ratio differs but little from the correlation coefficient. The author suggests that good correlation between kinetic energy and precipitation and between values of kinetic energy at different pressure levels may be obtained by using sufficiently large areas for averaging and large time intervals. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 04/        SUBM DATE: none/        ORIG REF: 001/        OTH REF: 002

Card 2/2

AUTHOR: Snitkovskiy, M. M.

TITLE: On the Strength of Cast-iron Welds and on Methods of Their Testing (K voprosu o prochnosti i metodike ispytaniy svarnykh soyedineniy chuguna)

ABSTRACT: Strong cast-iron welds may be achieved only if a proper combination of several factors is observed; in addition to metallurgical and metallographic considerations, these factors should also include considerations on the operating conditions of the metal deposited. A method is described whereby the strength of a cast-iron weld operating under complex stress conditions may be evaluated with an accuracy sufficient for all practical purposes by means of testing of special specimens consisting of a metal strip with a milled slot in the center having a V-shaped cross section and a length of 35-40 mm. Preparatory to testing, holes 6 mm in diameter are drilled along the edges of the slot. A strip intended for testing on a 30-ton

Card 1/2

On the Strength of Cast-iron Welds and on Methods of Their Testing     SOV/137-59-3-5795

tension-testing machine is 300 mm long, 85 mm wide, and 17 mm thick.  The slot, which simulates a crack, is welded under conditions identical to those which would be encountered in repairing an actual working part.  The strength of a weld thus tested may be evaluated by determining a nominal value of $\sigma_b$ therefor; the quality of a cast-iron weld is considered satisfactory if its nominal $\sigma_b$ value is equal to 80% of the $\sigma_b$ of the material of the strip.

G. K.

Card 2/2

SNITKOVSKIY, M., assistent

Repair of "Gants-Endrashik" 216-310 engine  crankcase and of 6DR 30/50 engine blocks by means of a tightening device. Mor. flot 18 no.2:21 F '58.                                    (MIRA 11:2)

1.Odesskiy institut inzhenerov morskogo flota.
          (Marine engines--Maintenance and repair)

SNITKOVSKIY, M. M., Cand Tech Sci (diss) -- "Investigation of a tie-rar method, and experience in using it in the repair of cast-iron parts". Odessa, 1960. 14 pp (Min Higher and Inter Spec Educ Ukr SSR, Odessa Polytech Inst), 250 copies (KL, No 14, 1960, 133)

SNITKOVSKIY, M.M., inzh.; SILAYEV, I.I., inzh.

Changes in the microhardness of phosphorus compound inclusions
in gray cast iron at from 20 to $300^{\circ}$ temperatures. Metalloved.
i term. obr. met. no. 5:42-45 My '60.           (MIRA 13:12)

1. Odesskiy institut inzhenerov morskogo flota.
        (Cast iron--Metallography)   (Metals at high temperatures)

SNITKOVSKIY, M.M., inzh.

Effect of hardening on the wear resistance of gray pearlitic cast
iron.  Metalloved. i term. obr. met. no.5:32-34 My '61.
(MIRA 14:5)

(Cast iron--Hardening)

STAROSEL'SKIY, A.A., dotsent; SNITKOVSKIY, M.M., assistent; PASHKOV, A.P., assistent.

Wear resistance of some gray pearlitic cast irons in connection with joining them in friction pairs.  Izv.vys.ucheb.zav.; mashinostr. no.7:95-100  '61.                                    (MIRA 14:9)

1. Odesskiy institut inzhenerov morskogo flota.
                    (Cast iron--Testing)

SNITKOVSKIY, M.M., assistent, SILAYEV, I.I., inzh.

Mechanism of the wear of gray phosphorous cast iron caused by friction. Izv.vys.ucheb.zav.; mashinostr. no.10:30-36 '61.
(MIRA 14:12)

1. Odesskiy institut inzhenerov morskogo flota.
(Cast iron—Testing)

IVANOV, S.A., dotsent; SILAYEV, I.I., inzh.; SNITKOVSKIY, M.M., inzh.

Causes of seam failure in expanding welded boiler tubes. Stal'
22 no.1:72-73 Ja '62.                                    (MIRA 14:12)

1. Odesskiy institut inzhenerov morskogo flota.
                    (Boilers, Water tube--Welding)

L 18918-63         EWT(d)/EWP(q)/EWT(m)/EWP(k)/BDS    AFFTC/ASD    Pf-4
JD/HW

ACCESSION NR:   AP3006603          S/0129/63/000/009/0019/0022

AUTHORS:   Snitkovskiy, M. M.; Yegorov, N. V.; Golomazyuk,
           I. A.

TITLE:   Increase in strength of R18 steel by swaging

SOURCE:   Metallovedeniye i termicheskaya obrabotka metallov,
          no. 9, 1963, 19-22

TOPIC TAGS: . swaging, cutting tool , R18 steel, austenite
            grain, carbide eutectic, metal stamping,
            austenization

ABSTRACT:   Authors examined the effect of swaging upon the
stability of cutting tools made out of R18 steel.  The tools
were swaged in a stamp with a conical die.  After swaging,
they were face-ground to a depth of 1-2 mm in order to remove
the surface crust.  Temperature and heating time varied.
The effect of austenite grain growth and carbide eutectic
upon the stability of the swaged cutting tools were examined.

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L 18918-63
ACCESSION NR: AP3006603

Authors found that swaging at a pressure of about 7000
kg/cm$^2$ increases the stability of cutting tools made out of
R18 steel by 40-50%. Grain growth does not reduce the
observed effect. Combining of the stamping and heat
treatment operations greatly simplifies the technology of
cutting tool production. This has a great practical signi-
ficance in the mass production of cutting tools with complex
shapes (milling cutters, drills, cutting tools, etc). The
wear resistance during swaging is augmented on account of an
increase in the dispersion of the submicrostructure. In
contrast to austenitization, swaging brings about a
volumetric change of the R18 steel's properties. Orig. art.
has: 5 figures and 1 table.

ASSOCIATION: Odesskiy institut inzhenerov morskogo flota
(Odessa institute of merchant marine engineers)

SUBMITTED: 00          DATE ACQ: 03Oct63          ENCL: 00

SUB CODE: ML           NO REF SOV: 005            OTHER: 000

Card    2/2

ACCESSION NR: AP4028998

AUTHORS: Perkas, M. D.; Snitsar', V. I.

TITLE: The influence of alloying elements on     martensite hardness in heated iron-nickel alloys

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 3, 1964, 400-407

TOPIC TAGS: iron-nickel alloy, martensite, alloying element, Ti, Al, Mn, Nb, Zr, Mo, martensite hardness, martensite aging, metal structure, Vickers hardness, phase composition, elasticity modulus

ABSTRACT: The influence on martensite aging of Ti, Al, Mn, Nb, Zr, and Mo additions to iron-nickel alloys was investigated. Experimental 5-kg ingots containing 1.0-2.0 wt % of alloying elements were cast and forged into rods 20 x 10 mm and into disks 14 mm in diameter. Martensitic structure was produced by air cooling of specimens. Their hardness (Vickers) and modulus of elasticity were determined after tempering and aging at various temperatures. The effect of adding alloying elements to material with 16.5-18.0% Ni                 at various temperatures is shown in Fig. 1 of the Enclosures. The same effect produced on material with 8.0%

Card 1/8 2

· ACCESSION NR: AP4028998

Ni by addition of Ti and Al (separately and jointly) may be seen in Fig. 2. It was
determined that martensite hardening increases with the increase of nickel content
and disappears below 2.0% Ni. Joint addition of several elements serves to
strengthen the $\alpha$-phase. The process of hardening ceases at about 500C and is
reversed at higher temperatures. The variation of the $\alpha$-phase strength was found
to be related to the number of defects in the original structure, and increased
with the number of defects. The modulus of elasticity was determined by measuring
the changes in the resonance frequencies of longitudinal oscillations. The changes
in the modulus became apparent at 350C, with the maximum being reached at 500C (see
Fig. 3 of the Enclosures). For comparison, Fig. 3 also shows the change of hard-
ness with temperature. Orig. art. has: 9 graphs.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of
Metallurgy and Physics of Metals,TsNIIChM)

SUBMITTED: 13May63          DATE ACQ: 27Apr64                    ENCL: 03

SUB CODE: ML, PH            NO REF SOV: 003                      OTHER: 004

Card 2/3 2

SNITSAR, Ya.Ye., inzhener.

Planning and building compartment dams on bedrock foundations.
Gidr.stroi 23 no.7:41-42 '54.                    (MLRA 7:11)
    (Dams)

SNITSAR, Ya.Ye., inzhener.

Construction of a pressure tunnel of a small hydroelectric power
plant on the Smotrich River. Gidr.stroi.25 no.5:48-49  Je '56.
(Smotrich River--Hydroelectric power stations)     (MLRA 9:9)

SNITSAK, Ya.YE

98-7-9/20

AUTHOR:      Snitsar, Ya.Ye., Engineer

TITLE:       The Siphon Lock on a Spillway Dam (Sifonnyy zatvor vodosliv-
             noy plotiny)

PERIODICAL:  Gidrotekhnicheskoye Stroitel'stvo, 1957, No 7, pp 35-37 (USSR)

ABSTRACT:    The proposed lock has 2 working positions one for periods of
             low water with a curved hinged lock and, a siphon for periods
             of high water.  The curved surface of the lock forms a
             siphon, which divides the flow going over the dam into 2
             parts:  the lower stream, which flows through the siphon,
             and the upper streams, which flows over the conventional
             spillway.  The separation of the stream utilizes the ejection
             force of the upper stream acting upon the discharge capaci-
             ty of the siphon, and enabling the disposal of floating ob-
             stacles, past the siphon into the tail race.  The hinge of
             the locking device is located on a line with the equivalent
             force of horizontal water pressure, and corresponds to the
             center of gravity of the lock.  Further rising of the water
             level brings the lock into the second working position, and
             water starts to flow over the dam, creating a vacuum in 2
             places.  The most effective vacuum action occurs at the head
             or at the beginning of the straight part of the lower section.

Card 1/2

The Siphon Lock on a Spillway Dam

98-7-9/20

For this reason the length of the straight part of the lock may equal the height of the siphon pipe. Completed hydraulic computations show that the use of siphon locks increases the discharge capacity of spillways by 20%. This increase may be higher at dams with permanent water pressures. There are 4 figures.

AVAILABLE:    Library of Congress

Card 2/2

SNITSAR, Ya.Ye. [Snitsar, IA.IE.]

Hydrodynamics method for designing a flat blanket and toe with drains. Dop. AN URSR no.6:620-625 '58.                    (MIRA 11:9)

1.Giprosel'elektro.  Predstavil akademik AN USSR G.N. Savin [H.M. Savin].

(Dams)

UTROBIN, Yevgeniy Nikolayevich; SAVVATEYEV, V.A., kand. okon.
    nauk, dots., red.; SNITSARENKO, A.A., red.

    [Benefits of the mechanization and automation of produc-
    tion] Chto daet mekhanizatsiia i avtomatizatsiia proiz-
    vodstva. Novosibirsk, Novosibirskoe knizhnoe izd-vo,
    1961.  35 p.                              (MIRA 18:7)

ZANIN, Vadim Ivanovich; ISAYEV, Ye.N., kand. ekon. nauk, otv. red.;
        SNITSARENKO, A.A., red.; YELISTRATOVA, Ye.M., tekhn. red.

        [Working time and labor productivity] Rabochee vremia i
        proizvoditel'nost' truda.  Novosibirsk, Izd-vo Sibirskogo
        otd-nia AN SSSR, 1963.  114 p.                (MIRA 16:10)
            (Labor productivity)  (Time study)

SOMINSKIY, V.S., doktor ekon. nauk, prof., red.; PATRUSHEV, V.D.,
        otv. red.; BELOUSOVA, V.S., red.; POTEMKIN, P.I., red.;
        SNITSARENKO, A.A., red.; OVCHINNIKOVA, T.K., tekhn. red.

        [Economic problems of mastering new enterprises] Ekonomi-
        cheskie voprosy osvoeniia novykh predpriiatii. Pod obshchei
        red. V.S.Sominskogo.  Novosibirsk, Izd-vo Sibirskogo otd-
        niia, 1963.  231 p.                          (MIRA 16:11)

        1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut eko-
        nomiki i organizatsii promyshlennogo proizvodstva.
                    (Industrial management)

KOROVINA, Zinaida Pavlovna; DOL'NIKOV, Grigoriy L'vovich;
        POTEMKIN, P.I., kand. ekon. nauk, otv. red.;
        SHITSARENKO, A.A., red.

        [Overall improvement in planning in industry] Kompleksnoe
        sovershenstvovanie planirovaniia v promyshlennosti, Novo-
        sibirsk, Red.-izdatel'skii otdel Sibirskogo otd-niia AN
        SSSR, 1964.  44 p.                         (MIRA 17:9)

ILINEV, Valentin Andreyevich; ABRAMOVICH, D.I., doktor geogr.
nauk, otv. red.; TSITSARENKO, A.A., red.

[Kamen' Hydroelectric Power Station on the Ob' River and
the irrigation of the Kulunda Steppe] Kamenskaia GES na
Obi i oroshenie Kulundy. Novosibirsk, Red.-izd. otdel
Sibirskogo otd-niia AN SSSR, 1964. 58 p. (MIRA 17:8)

POTEMKIN, Petr Ivanovich; SOMINSKIY, V.S., prof., otv. red.;
SHTSARENKO, A.A., red.

[Essays on the methods of evaluating the projected ef-
ficiency of new enterprises] Ocherki o metodakh otsenki
proektnoi effektivnosti novykh predpriiatii. Novosibirsk,
Red.izd. otdel Sibirskogo otd-niia AN SSSR, 1964.  68 p.
                                        (MIRA 17:12)

ZUDINA, Lyudmila Nikolayevna; ISAYEV, Ye.N., kand.ekon.nauk,
      otv.red.; SNITSARENKO, A.A.,red.

      [Organization of work in Kuznetsk Basin coal mines] Or-
      ganizatsiia truda na ugol'nykh shakhtakh Kuzbassa. No-
      vosibirsk, Red.-izd. otdel Sibirskogo otd-niia AN SSSR,
      1964.  73 p.                          (MIRA 17:12)

MARKOVSKIY, Aleksey Stepanovich; BOKHANAT, A.A., kand. ist.
nauk, otv. red.; SHILTSARENKO, A.A., red.

[The working class of Western Siberia during the years of
the first five-year plan] Rabochii klass Zapadnoi Sibiri
v gody pervoi piatiletki.  Novosibirsk, Red.-izd. otdel
Sibirskogo otd-niia AN SSSR, 1962.  118 p.   (MIRA 18:1)

ARKHIPOV, Stanislav Anatol'yevich; MATVEYEVA, Ol'ga Vladimirovna; PUMINOV, A.P., kand. geol.-mineralog. nauk, otv. red.; SNITSARENKO, A.A., red.

[Quaternary of the southern margin of the Yenisey Depression.] Antropogen iuzhnoi okrainy Eniseiskoi depresii. Novosibirsk, 1964. 127 p. (Akademiia nauk SSSR. Sibirskoe otdelenie. Institut geologii i geofiziki. Trudy, no.29)

(MIRA 17:12)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR (for Puminov).

GOSTREM, Runar Viktorovich; ZINOV'YEV, Gennadiy Stepanovich;
    SNITSARENKO, A.A., red.

    [Tunnel diodes and their applications] Tunnel'rye diody
    i ikh primenenie. Novosibirsk, Red.-izd. otdel Sibir-
    skogo otd-niia AN SSSR, 1964.   130 p.      (MIRA 18:1)

ZVALI, I..., st. nauchn. sotr., kand. tekhn. nauk, otv. red.;
ZIFFLRZLM , A.A., red.

[Radio communication systems and high-frequency remote
control in the mining industry] Radiosviaz' i vysoko-
chastotnaia telemekhanika v gornoi promyshlennosti. Otv.
red, L.M.Savkin. Novosibirsk, Izd. izd. otdel Sibirskogo
otd-niia AN SSSR, 1964. 173 p. (KIRA 17:8)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut
gornogo dela.

MATVEYEVA, F.A., kand. tekhn. nauk, otv. red.; MELEKHOVA, T.F.,
        nauchn. sotr., zam. otv. red.; KVYATKOVSKAYA, K.K.,
        kand. tekhn. nauk, red.; KOSHLYAK, L.L., kand. tekhn.
        nauk, red.; PLEKHANOVA, Ye.A., nauchn. sotr., red.;
        SNITSARENKO, A.A., red.

[Prospects of the development of the ceramic industries
of Siberia and of the Far East; materials] Perspektivy
razvitiia keramicheskoi promyshlennosti Sibiri i Dal'nego
Vostoka; materialy. Novosibirsk, Red.-izd. otdel Sibirsko-
go otd-niia AN SSSR, 1964.  183 p.            (MIRA 17:11)

1. Soveshchaniye po khimii i tekhnologii keramiki i per-
spektivam razvitiya keramicheskoy promyshlennosti Sibiri
i Dal'nego Vostoka. Novosibirsk, 1962. 2. Khimiko-
metallurgicheskiy institut Sibirskogo otdeleniya AN SSSR
(for Matveyeva). 3. Gosudarstvennyy nauchno-issledovatel'-
skiy institut stroitel'noy keramiki (for Kvyatkovskaya,
Koshlyak).

SOBOLEVA, Arianna Dmitriyevna; TSELLARIUS, Yu.G., kand. med. nauk,
otv. red.; SNITSARENKO, A.A., red.

[Pathological anatomy of the lungs in leukemia] Patologi-
cheskaia anatomiia legkikh pri leikoze. Novosibirsk, Red.
izd. otdel Sibirskogo otd-niia AN SSSR, 1964.  229 p.
                                         (MIRA 17:8)

MEN'SHIKOVA, Z.I.; SNITSARENKO, A.A., red.

[Technical and economic indices in the potash industry
and prospects for the expansion of production and consump-
tion of potash fertilizers during the period ending in
1970] Tekhniko-ekonomicheskie pokazateli v kaliinoi pro-
myshlennosti i perspektivy rosta proizvodstva i potreblenija
kaliinykh udobrenii na period do 1970 goda. Novosibirsk,
Red.-izd. otdel Sibirskogo otd-niia AN SSSR, 1965. 8 p.
                                    (MIRA 18:6)

TSITSARENKO, A.A., red.

[Methods of controlling ice at hydroelectric power sta-
tions in Siberia] Metody bor'by s ledovymi zatrudneniiami
na gidrostantsiiakh Sibiri. Novosibirsk, Red.-izd. otdel
Sibirskogo otd-niia AN SSSR, 1965. 95 p.
(MIRA 18:5)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Sibirskiy
nauchno-issledovatel'skiy institut energetiki.

PETROV, D.F., doktor biol. nauk, otv. red.; SNITSARENKO, A.A.,
red.

[Breeding of microbes] Selektsiia mikrobov. Novosibirsk,
Redaktsionno-izdatel'skii otdel SO AN SSSR, 1965.  134 p.
(MIRA 18:9)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Laborato-
riya tsitologii rasteniy i apomiksisa.

diagram of the ... dryings air ... (NRZA 18:11)

ZYBIN, Yu.P.; AKULOVA, T.Ye.; SNITSARENKO, L.G.; UL'YANITSKIY, V.A.

Mercury resistance transmitter for measuring large deformations
in materials. Trudy Inst. mash. Sem. po teor. mash. 19 no.76:26-33
'59.                                                    (MIRA 13:3)
                        (Strain gauges)

L 3381-66    EWT(m)/EWP(j)/T    RM

ACCESSION NR: AP5022093

UR/0138/65/000/008/0042/0044

678.06:685.314.33.002.2

AUTHOR: Tokareva, T. Ye.; Snitsarenko, L. G.; Volkova, N. A.; Baksht, O. V.;
Zel'dich, E. I.; Kheyfets, F. M.

TITLE: Compounding and technology for manufacturing winter-proof boots

50
46
B

SOURCE: Kauchuk i rezina, no. 8, 1965, 42-44

TOPIC TAGS: rubber chemical, antifreeze, synthetic material, butadiene sty-
rene rubber, filler, plasticizer, thermoelasticity, special purpose clothing,
rubber/SKMS-10 rubber

ABSTRACT: Formulations and technology for making frost-resistant boots which
retained their elasticity at -50C were worked out and introduced commercially.
Formulations for all parts except the tricot-backed boot tops were based on frost
resistant rubber SKMS-10, and natural rubber was used in formulation for fabric
application.  The antifreeze effectiveness of dibutylphthalate, dibutylsebacinate,
MVP oil, "plasticizer" oil and transformer oil was evaluated.  The first two
compounds gave the best frost-resistance at -50 C , and formulations containing
dibutylphthalate had the greatest resistance to aging and became brittle below

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L 3381-66

ACCESSION NR: AP5022093

-65C. Different types of carbon black had little effect on frost-resistance. Manufacturing technology for making frost-resistant regular and fisherman's boots is analgous to that for making ordinary molded boots. Orig. art. has: 2 tables

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy (Scientific Research Institute for Rubber and Latex Products); Zavod "Krasnyy bogatyr" (Krasnyy Bogatyr" Plant)

SUBMITTED: 00                    ENCL: 00              SUB CODE: MT, IE

NR REF SOV: 005                  OTHER: 000

Card 2/2